What Is Claimed Is:

1. A method of operating a refrigeration system having a compressor, condensor and evaporator, the method comprising:

controlling the effective surface area of the evaporator to obtain a desired heat load on the evaporator.

2. The method of claim 1, further comprising:

controlling the flow of a refrigerant fluid into the evaporator to obtain the effective surface area.

3. The method of claim 1, further comprising:

measuring the effective surface area of the evaporator.

4. The method of claim 1, further comprising:

varying the desired heat load to the evaporator as a function of the present capacity of the compressor.

5. The method of claim 4, further comprising:

varying the capacity of the compressor as a function of the presently available power.

6. The method of claim 5, further comprising:

monitoring the power available from an electrical grid; and

monitoring the power demanded by the compressor, wherein the capacity of the compressor is varied so that the power demanded by the compressor tracks the presently available power from the electrical grid.

7. The method of claim 5, wherein the capacity of the compressor is varied by controlling the rate at which vapor is compressed.

8. The method of claim 7, wherein the step of controlling the rate at which vapor is compressed comprises one or more step selected from controlling the flow of gas into the compressor, controlling the compression ratio of the compressor, controlling the number of cylinders used for the compression cycle, controlling the speed of the compressor, and combinations thereof.

9. The method of claim 7, further comprising unloading a subportion of the compressor.

10. The method of claim 9, wherein the subportion of the compressor is unloaded by positioning an intake valve to one or more compressor cylinders in an open position.

11. The method of claim 5, wherein the step of controlling the capacity of the compressor comprises one or more step selected from hot gas bypassing, varying the amount of heat removed from the condenser, varying the amount of heat removed from the evaporator, and combinations thereof.

12. The method of claim 1, further comprising cycling the compressor.

13. The method of claim 7, further comprising adjusting the rotational speed of the compressor.

14. The method of claim 1, wherein the step of controlling the capacity of the compressor includes varying the speed or torque of the compressor.

15. The method of claim 1, further comprising:

monitoring one or more system variables selected from evaporator system temperature, evaporator system pressure, condenser system temperature, condenser system pressure, level of refrigerant in the high side liquid receiver, refrigeration level in the evaporator, compressor rotational speed, system power input, line voltage, line current, and line phase factor.

16. The method of claim 15, further comprising:

determining the present capacity of the compressor.

17. The method of claim 16, further comprising:

controlling the heat load in proportion to the present capacity of the compressor.

18. The method of claim 17, wherein the heat load is determined by the amount of product to be processed.

19. The method of claim 18, wherein the product is ice.

20. The method of claim 1, further comprising:

controlling the power delivered to the compressor as a function of the amount of power determined to be available; and

adjusting the heat load as a function of a condition of the evaporator, wherein the condition is selected from physical measurements.

21. The method of claim 20, wherein the physical measurements are selected from evaporator temperature, level of refrigerant in the evaporator, evaporator suction pressure, evaporator discharge pressure, and combinations thereof.

22. The method of claim 17, wherein the step of controlling the heat load further comprises:

controlling the flow of refrigerant to maintain the evaporator in a flooded mode; and

controlling the level of refrigerant in the evaporator to effect a desired heat load.

23. The method of claim 17, wherein the refrigeration unit includes an icemaker, and further comprising adjusting the feed water distribution to change the contact between the water and the evaporator.

24. The method of claim 23, wherein the icemaker is selected from a block ice machine, a tube chunk machine, a spinning disk flake machine, a drum and scraper flake machine, and slush ice machine.

25. The method of claim 1, further comprising:

delivering the refrigerant to the evaporator continuously or periodically based on system operating parameters.

26. The method of claim 1, further comprising:

evacuating, during periods of surplus power, a low pressure reservoir; and

providing communication, during periods of limited power availability, of the low pressure reservoir with the suction side of the compressor.

27. The method of claim 1, further comprising:

controlling the position or number of water introduction conduits across the evaporator surface.

28. The method of claim 1, further comprising:

(d) controlling the pressure of the evaporator to control the evaporator temperature.

29. A refrigeration unit, comprising:

means for monitoring the electrical supply; and

a controller for varying the heat load so that the electrical demand tracks the electrical supply.

30. The refrigeration unit of claim 29, further comprising an ice maker.

31. The refrigeration unit of claim 29, wherein the compressor is a non-reciprocating compressor.

32. The refrigeration unit of claim 29, wherein the controller is a power distribution controller.

33. The refrigeration unit of claim 29, wherein the means for monitoring the electrical supply comprises one or more sensors for measuring an electrical supply characteristic selected from voltage, current, power factor, an independent external signal and combinations thereof.

34. The refrigeration unit of claim 29, further comprising means for varying the compressor speed or torque.

35. The refrigeration unit of claim 34, wherein the means for varying the compressor speed or torque is selected from a transmission converter, a torque converter, a direct current motor, an alternating current motor with variable speed controller, and an alternating current motor with variable torque controller.

36. The refrigeration unit of claim 34, wherein the means for varying the compressor speed provides turndown ratios of 10:1 or greater.

37. The refrigeration unit of claim 29, further comprising:

a valve for selectively communicating the low pressure reservoir with the low pressure side of the compressor.

38. The refrigeration unit of claim 29, wherein the refrigeration unit is an air cooler.

39. The refrigeration unit of claim 30, further comprising a water introduction conduit defining a water introduction point, and wherein the water introduction point is selectively positionable at various distances above the base of the evaporator surface.

40. The refrigeration unit of claim 29, further comprising:

means for removing oil from the refrigerant.

41. The refrigeration unit of claim 29, further comprising:

a baffle in the evaporator to encourage natural circulation due to rising refrigerant bubbles.

42. The refrigeration unit of claim 41, wherein the baffle is perforated or louvered.

43. A refrigeration unit, comprising:

an absorption system; and

a controller for varying the heat load to the absorption system.